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Promoting Team-Based Exercise Among African American Breast Cancer Survivors

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Abstract

Physical activity benefits the health and well-being of breast cancer survivors (BCS). Yet, many African American survivors do not routinely exercise and have increased risk of poor outcomes. The purpose of this mixed-method study was to identify motivational factors compelling African American BCS to participate in a 14-week team

walking program and to intend to continue exercise after the intervention concluded. Focus groups were held with participants ($n = 12$) before and after training. Content analysis discovered themes before the intervention: Not wanting to go at it alone, exercise not a life or treatment priority, cancer treatment affected activity, advocates to exercise, and can exercise really help? Four themes postintervention themes included: In the same boat, changed mind-set, improved weight and activity, and overcoming barriers. Physical data verified improvements. Results suggest that a team-based exercise training program may assist in overcoming a sedentary behavior tendency and subsequently improve health among survivors.

Keywords [focus groups](#), [African-Americans](#), [motivation](#), [breast cancer](#), [survivors](#)

Through early detection and advancements in treatment, the rates of breast cancer survivorship are increasing nationally ([Miller et al., 2016](#)). Researchers have established that both aerobic and resistance exercise benefit the health and well-being of breast cancer survivors (BCS; [Battaglini et al., 2014](#)). Significant symptom benefits may be achieved with a minimum of 150 min of moderate, or 75 min of vigorous aerobic exercise, along with at least two strength training sessions per week ([Ellsworth, Valente, Shriver, Bittman, & Ellsworth, 2012](#)). Engaging in exercise is effective for reducing fatigue and depression, and improving sleep, cardiorespiratory fitness, body composition, muscle strength, and quality of life after cancer treatment ([Battaglini et al., 2014](#); [Cho, Dodd, Cooper, & Miaskowski, 2012](#)). Exercise after primary breast cancer treatment is also associated with improved survival rates ([Bradshaw et al., 2014](#); [Cho et al., 2012](#); [Ellsworth et al., 2012](#)). A large epidemiological study found a 22% increased risk of mortality from breast cancer among those with very low physical activity ([Nelson et al., 2016](#)). Yet, many BCS do not exercise at recommended levels ([Loprinzi & Lee, 2014](#)). Studies of BCS after cancer treatment showed as few as 16% meet exercise guidelines ([Lee, Von Ah, Szuck, & Lau, 2016](#)) and as many as 42% were inactive ([Lucas, Levine, & Avis, 2017](#)). Studies also show the percent meeting guidelines may remain low even after an exercise intervention ([Loprinzi, Cardinal, Si, Bennett, & Winters-Stone, 2012](#); [Lucas et al., 2017](#)).

Exercise Among African American BCS

The lack of physical activity among BCS is especially evident among minority populations ([Spector, Deal, Amos, Yang, & Battaglini, 2014](#)). African American BCS are less likely than Caucasian BCS to meet exercise recommendations after treatment ([Coughlin, Yoo, Whitehead, & Smith, 2015](#); [Spector et al., 2014](#)). One study found that 54% of African American survivors did not meet guidelines for physical activity ([Paxton et al., 2014](#)). African American BCS report barriers to beginning or sustaining an exercise program that include pain, fatigue, safety concerns, fear of injury, poor health, negative attitudes toward exercise, lack of motivation or self-discipline, and lack of an exercise partner, equipment, or time ([Oyekanmi & Paxton, 2014](#); [Stolley, Sharp, Wells, Simon, & Schiffer, 2006](#)). Other causes of lower activity levels among African Americans may include unsafe living environments and the multiple obligations of the women who perceive physical activity as a luxury, not a priority ([Im et al., 2012](#)).

Improving exercise habits is especially important among African American BCS due to the disparity seen in diagnosis and survival. African American BCS are more likely to be diagnosed at higher stages and have lower survival rates than Caucasians ([Coughlin et al., 2015](#)). This lower survival rate is seen even when comparing those diagnosed at the same stage ([Coughlin et al., 2015](#)). African American BCS also have higher rates of obesity, which contributes to lower survival rates ([Coughlin et al., 2015](#)).

Understanding motivations of sedentary African American BCS to engage and continue participation in routine exercise can help in planning interventions to increase exercise. One possible motivator is social support ([Courneya et al., 2016](#); [Robinson, Piacentine, Waltke, Ng, & Tjoe, 2016](#)). Activity participation has been shown to improve when social support, such as team development, camaraderie in exercise, or friendship, is present for cancer survivors ([Carter et al., 2012](#); [Wurz, St-Aubin, & Brunet, 2015](#)) as well as for healthy

African American women ([Peterson & Cheng, 2010](#)). A BCS community triathlon training study highlighted the impact of a supportive team environment ([Robinson et al., 2016](#)). Women looked forward to team training as they felt supported by teammates, had fun among women with similar stories, and they wanted the team to continue long past training. The triathlon training was different from many interventional studies that include individual or group exercise programs lacking intentional team support.

Another factor to increasing exercise may be goal setting. Studies have found that setting individual goals as part of an exercise program leads to better outcomes ([Courneya et al., 2016](#); [Spector et al., 2014](#)). Goal-setting in a structured setting with a physical activity counselor was found to be more effective than just giving health education materials ([Courneya et al., 2016](#)).

Purpose

Among a population with known disparities related to breast cancer survival rates, implementation of routine exercise may lessen the gap. Researchers need to better understand how to engage sedentary BCS in increased exercise behaviors for improved quality of life. The purpose of this descriptive study was to identify motivational factors compelling African American BCS to participate in a 14-week team walking program and to intend to continue exercise after the intervention concluded.

Method

A mixed-methods approach was used for a pilot study to examine motivational factors influencing participation in a community-based goal-oriented exercise training program. This study was part of a larger study designed to establish feasibility and efficacy of a walking program for overweight and obese BCS in an underserved community.

The theory of planned behavior ([Ajzen, 1991](#)) guided some of the initial focus group questions exploring intent to participate in the intervention. The premise of this theory is that intent to change a behavior is influenced by three factors: attitude toward the behavior, subjective norms, and perceived control over the behavior. During focus groups, additional questions clarified or explored topics introduced by the group. As the intervention was designed as part of a larger study, the pretraining group responses did not change the intervention.

Participants and Setting

During routine health care visits, two medical professionals recruited sedentary overweight (BMI [Body Mass Index] = 25-29.9) or obese (BMI > 30) African American female BCS into the study. These professionals also recruited a team of medical professionals to supervise the program. To encourage BCS participation, the training program was held in an urban community center in the Midwest located in close proximity to participants homes. Participants received a US\$10 store gift card for participation in each focus group and physical testing session before and after the intervention. The research study was approved by the local institutional review board, and informed consent was obtained from all study participants.

Intervention

Participants underwent a 14-week intervention. A professional coach directed twice weekly supervised training sessions and provided a detailed training plan of 3 times per week training sessions at home. Supervised indoor and outdoor training sessions were 1.5 h long and included walking/jogging, stair climbing, leg and arm strengthening, stretching, agility, and balance exercises. Team training sessions were medically supervised by a physician, a physical therapist, or a registered nurse. A team of volunteers with cancer, who had prior experience completing the team training, helped establish trust at training sessions. Coaches and volunteers established an encouraging environment, praising women's abilities. Educational seminars lasting 15 to 20 min were delivered weekly by content experts. Topics included basic nutrition, methods of exercise when feeling under the weather, how to navigate training barriers, and general fitness knowledge. Each woman received a

binder including information on proper techniques for stretching and running, basic nutrition considerations for training, and a training plan, which detailed how to gradually increase goals of time and distance walked.

Measures

Demographics were collected at baseline. Focus groups were held before and after the intervention. Focus group methodology was chosen to capture group interaction and stimulate dialogue among BCS exercise program participants. Two researchers, not conducting the intervention, conducted 1-h focus group sessions in a private community room at both exercise intervention initiation and conclusion. Open-ended questions elicited survivors' perceptions of factors influencing the decision to initiate and maintain program participation. Questions before training included items such as, "Describe how you believe exercise may impact your life" and "Describe things that may help you to exercise more (or start)." After training, questions included "How has being a member of the training team impacted your future exercise plans," "Describe your experience as a member of the team," and "What has been challenging to you." Researchers asked probing questions to extract further information and to maintain study focus. The focus group sessions were audio-recorded for accuracy and participants' nonverbal cues were noted. Participants were encouraged to candidly relate their experiences and give additional comments.

Quantitative measures collected before and after program participation included percent attendance at supervised training sessions and physical fitness measures of BMI, 6-min walk test (6MWT), and sit-to-stand for 30 s. The 6MWT measures the distance (meters) walked in 6 min and is valid and reliable as a test of functional capacity in BCS ([Fisher et al., 2015](#)). The sit-to-stand counts the number of repetitions in 30 sand is a valid and reliable test of muscle strength and power ([Bohannon, 1995](#)).

Analysis

The focus group audio tapes were transcribed verbatim and accuracy was verified by the lead researcher. The audio tapes were compared with the written transcripts and field notes and any discrepancies resolved. The two researchers then independently analyzed the transcriptions, using content and thematic analysis, and coded like statements and phrases. Major themes and subthemes were separately identified by each researcher. After initial evaluation, the researchers met to review the statements and themes. Transcripts were again reviewed seeking evidence of the themes. Discussion ensued until consensus was achieved regarding themes and subthemes. Paired *t* tests were used for the quantitative data analysis to compare pre- and poststudy data.

Results

Twelve female breast BCS participated in two focus groups in this study. Focus groups took place before and after the training program. The average age was 53.6 (*SD* = 10.3) years with 4.9 (range = 0.3-14.4) years of cancer survivorship and most women were classified as obese ([Table 1](#)). Training session attendance averaged approximately 70% (range = 47%-94%) during a winter with extended record-setting cold weather. Pre- and postphysical fitness measures were completed by seven participants. Five participants were unable to come to at least one physical assessment appointment. Those who could not attend stated they had time pressures and family obligations preventing them from coming to practice or staying for testing.

Table 1. Demographic and Medical Characteristics.

Variable	<i>n</i>	%
Race		
African American (n)	12	100
Marital status		
Married	7	58
Single/divorced	5	42
Breast cancer stage		

0		8
1	5	42
2	4	33
3	2	17
Treatments		
Surgery	12	
Chemotherapy	7	
Radiation therapy	9	
BMI		
Overweight		8
Obese	11	92
<i>Note . BMI = Body Mass Index .</i>		

Training Program Physical Measures

Functional endurance significantly improved over the length of the program as indicated by the 6MWT, pre: $M = 503$ m ($SD = 56$); post: $M = 570$ m ($SD = 63$), $p = .021$. The average distance gained was 67 m. One participant progressed from needing a cane before the training to walking without assistance at the end of the 14 weeks. BMI and sit-to-stand did not change significantly ([Table 2](#)). Nine of the 12 women participated in the posttraining program 5K walk, three did not due to family responsibilities.

Table 2. Quantitative Measures Pre- and Postintervention.

Variable	Pre-M (SD)	Post-M (SD)	p value
Weight			
Pounds	200.3 (26.8)	202.6 (27.3)	.351
BMI			
Kilograms/Meter squared	34.0 (4.1)	34.4 (4.3)	.318
6MWT			
Meters	503 (56.2)	570 (63.5)	.021
Sit-to-stand in 30's			
Repetitions	14.57 (3.2)	16.1 (3.7)	.052

Note: BMI – Body Mass Index: MWT -Minute walk test

Focus Groups

Through content analysis of the focus group transcripts, four themes were identified before the intervention: Not wanting to go at it alone, exercise not a life or treatment priority, cancer treatment impact on inactivity, advocates to exercise, and can exercise really help? After the intervention, the themes shifted to in the same boat, changed mind-set, improved weight and activity, and overcoming barriers ([Table 3](#)).

Table 3. Focus Group Themes Pre- and Postintervention.

Preintervention	Postintervention
Not wanting to go at it alone	In the same boat
Exercise not a life or treatment priority	Changed mind-set
Cancer treatment impact on inactivity	Improved weight and activity
Advocates to exercise	Overcoming barriers
Can exercise really help?	

Preintervention: Not wanting to go at it alone

Prior to training, women discussed not wanting to exercise alone. One had exercised frequently with her husband, and another with her sister, but that ended recently when the sister was married. The women described wanting a structured group program with other BCS.

When you are in a group of people that went through some of the same things. It's not the same as, like, going to join a class at the Y[MCA], because you just don't have the same, you know, that background. To me, that's kind of support.

The group members nodded and verbally indicated agreement. No participant reported apprehensions about completing the training.

Preintervention: Exercise not a life or treatment priority

Despite knowing exercise benefits, many BCS confessed that they lacked a consistent exercise regimen and had not prioritized exercise. "You don't really see that it [exercise] really should be a priority." One woman remarked, "We have free gym, free equipment and everything [at work], and I use it once in a blue moon." The women mentioned all the other responsibilities (e.g., family, work, etc.) interfering with exercise and competing for their time. One participant described it as,

You know if you're dealing with a lot of issues or if you have a busy schedule or something you can just really not see. . . how exercising and being in shape helps to facilitate you to do those things better.

Several women agreed that time was a major factor and they did not take time to exercise.

As they engaged in the training program, women indicated exercise needed to be a priority and they intended to exercise. One participant stated,

We really truly got to put it [exercise] up at the top because we don't look at it, but exercise is what's going to . . . keep us going. And when you do start exercising you feel so good. . . . To me, it's like 90% of your health is exercise. . . . As breast cancer survivors, honestly, exercise should be at the top of our list.

The participants nodded in approval and subscribed to the need for a shift in their priorities. They all agreed that this training was "not just something for 12 weeks, 14 weeks or whatever." They wanted "it to become a lifestyle."

The participants also related that exercise was not part of their treatment phase. They spoke of providers emphasizing nutrition, but not exercise as important. Provider-patient conversations were "more about eating certain things and it really wasn't necessarily eating good things. Whatever, just to make sure you were in a position to get chemo again." Retrospectively, they spoke to the need for including exercise in the treatment. "Maybe doctors, the team of doctors that we have, maybe should include some sort of exercise regimen through treatments and stuff." Conversely, one BCS did discuss exercise as important with their providers.

Pre-intervention: Cancer treatment impact on inactivity

Sustained large weight gain with cancer treatment was frequently noted as an issue in the women's lives, as was the hope that exercise would help with weight control. One noted, "I gained probably 50 pounds after treatment and I've never really lost the weight." Women felt exercise was stopped by treatment.

Well, before I was diagnosed I had [exercised], I did exercise quite regularly But then, seems like once I was diagnosed and went through surgery and treatments and everything. I just. . . never got back into. . . I had no enthusiasm or anything about going back to exercise.

The physical and emotional effects of cancer and treatment were described as major exercise barriers by the participants. All the survivors reported treatment fatigue. One BCS commented, "I had surgery [mastectomy] and couldn't do nothing. I just sat back eating." "Seems like once I was diagnosed and went through surgery and treatments and everything, I just never got back into it [exercise]. I had no enthusiasm or anything." Fatigue and treatment limited physical activity. Conversely, two BCS asserted that cancer diagnosis and treatment had led to increased exercise. However, after treatment both women said that they, too, became inactive.

Preintervention: Advocates to exercise

Most participants identified family, including moms, sisters, husbands, and kids, as cheerleaders, emboldening them to join the exercise program. One participant noted that her past experience on a team was "motivating" her to join. Also, BCS were anticipating that being with people with similar stories would help them. And another was motivated by her physical therapist, because "she motivates you to do the exercise and everything." Besides the influence of people, the women noted a strong family history and the chance of cancer recurrence as a reason to start routine exercise. "It's not saying that the cancer won't come back, but I guarantee if we exercise and eat right, we have a much better chance of it not coming back."

Preintervention: Can exercise really help?

Participants perceived physical benefits of exercise, including general health, sleep, and weight control. They also spoke to the mental benefits. "It has so many benefits. I mean it helps you think better; you're not all depressed." "I think that if we exercise it would not only help us feel better physically, but I think it helps also emotionally and mentally." The group responded with accord to mental benefits. Only one stated that she needed more education on why exercise was beneficial and important.

Limited knowledge about exercise was also noted by the women. They knew some ways to exercise, "But there are so many more things that I would like to be introduced to, and I never been able to jog or run very well." Fear of injury was stopping one woman from exercising.

Postintervention theme: In the same boat

After the training program, participants commented that team training had exposed them to women who were experiencing similar things, that they were "in the same boat," which helped in getting them to exercise. One woman related that the "team gets to know you, they learn you." Another woman stated,

I love the comradery that everybody had, I love the attitude. We all been through this big adjustment in our lives, I guess you want to say. And, just seeing that there's other people out there, instead of being at home like. . . I had great support, but still, I'm still in my mind, "why"? You know, so, I'm not the only one . . . They (the trainers) worked me with me. I really appreciate that, you know, it's like okay, you're not the only one, we're all in this together, so I did like the comradery that everybody had.

Another woman stated that "everybody helps me." The team exercise sessions were viewed as a "life-saver" for one participant and "God sent" for another and encouraged exercise even on days the team did not meet. The women declared that the team, including the trainers, professionals, and the volunteer BCS, had pushed them to achieve. Early on, some stated they felt too much of a push, but they appreciated it. The BCS had looked forward to exercising as a team at the community center and the local walking track. "I don't need that push. I just come."

In addition to the physical encouragement, a few women related the team helped them to address their cancer. One woman professed that the team had helped her to claim her disease.

I didn't even want to claim it (breast cancer), I didn't want to claim it at all. When I was going through my chemo and everything, some of my family members didn't even know. But now, I'm beginning to realize that I have to be a little bit more open about it. . . I have more confidence in myself now. . . and I feel I got this because of (the training team). I think I've gotten and I'm more promoting better health habits.

And, another woman discussed how she had opened up.

Earlier on [in the program] I wasn't talking about it [cancer] as much as I am now. So it [team training] brought me out about talking about the disease and about exercise. I wish I would have had this when I was going through my treatments.

Another woman mentioned how she had been frightened returning to the work world after her treatment ended and she no longer was supported by her treatment team. She had felt cared for everyday by the treatment team, and as she returned to work she felt "frightened" by a job she had done "forever." The exercise team was different because they did not "just throw you back out there into the world." One participant identified a lack of supportive family and friends, to which the team members encouraged her by commenting, "Now you have got all of us."

Postintervention theme: Changed mind-set

The participants talked candidly about the physical transformations of training, such as, walking further distances and having a new ability to bend and touch their toes. They expressed surprise at how much they achieved in a short time with new physical abilities. And, they spoke of mental changes such as the team "getting me off the couch." They mentioned enjoying the different activities and expressed that they felt they could now fit more exercise into their lives.

(Before) if I couldn't do, you know, 30 minutes of exercise, then I ain't doin' no exercise. But, now, I don't do that; I do whatever I can, so if it's five minutes, if I can do, whatever, because I know that it all adds up.

Exercise now fit into daily routines.

Participants observed changes in attitudes or "mind-set." They commented that they liked exercise and enjoyed achieving success. "I was going through depression; but this made me come out [of depression]." They spoke specifically of mental health benefits of group engagement unleashing suppressed feelings and positively impacting depressive feelings related to diagnosis and life after treatment. The group training helped the women feel "better" about themselves and they planned to continue incorporating exercise into their lives.

Postintervention: Improved weight and activity

With the training, BCS noted changes in weight. One woman noted losing a little weight and feeling better. One noted "I may not lose weight as fast as the other person; but I have seen the difference." And the women noted improved exercise with training. "It was sort of hard when you get to. . . you're sort of heavy and overweight. Now I can move a little bit faster."

The BCS also noted changes in physical ability. One BCS spoke about how she could not have ever imagined walking 3 km, yet, during training she did it. "I couldn't believe it. I was shocked. They told me I made it. I'm still shocked." Another stated,

I think all of us can see from when we first started the things that were really very difficult to do and now, even though I may not be an expert at doing everything, the things that I can do are definitely much easier.

The BCS, although expressing being surprised by it, related they had gained endurance. The majority of women also stated that barriers were removed, and they intended to continue exercising after the team ended.

Post-intervention: Overcoming barriers

Women talked about the barriers they had encountered while in the program. One barrier women related was that the program challenged their abilities. Initially, some BCS perceived the program as “too hard.” As the team support developed, this feeling disappeared. The BCS also noted physical barriers of health issues, especially fatigue. However, some noted, that despite times of being tired, they kept coming, because of the team. Some women listed life responsibilities, such as work and family care keeping them from exercising. Other barriers to training listed by the women included distances to the exercise training sessions as well as lack of working equipment in the community center.

Discussion

This study is unique in that medical professionals were able to recruit overweight and obese African American BCS into a walking program, keep them engaged in the program, and demonstrate physical improvement through the 6MWT. The insight African American BCS provided about factors influencing them to exercise is informative to practitioners.

The women in this program demonstrated improvement in their functional abilities. The average distance gained, 67 m, was important. Gaining more than 50 m is considered to be a substantial meaningful change for BCS ([Fisher et al., 2015](#)). This finding supports another small study of a 20-week support group and strength training program which took place at a community cancer center which also found meaningful change ([Nock et al., 2013](#)).

Exercise intervention studies have recruited low percentages of African American women. One reason for this low recruitment may be that most interventions take place in academic and clinic settings, whereas African American women prefer community settings ([Nock et al., 2013](#)). The women in this current study were recruited to exercise in their own community with a group of women with similar stories. They were encouraged by family, friends and professionals to start exercising. They were motivated by other team members and enjoyed exercising together. The recruitment method may have biased this study to women who wanted to exercise in a group with similar stories. In contrast, an online study found African American BCS preferred not to exercise in groups or with noncancer patients. Possibly the online study method or the group composition led to different results ([Paxton et al., 2014](#)).

In congruence with other studies, the participants identified that the social support of the team was important to developing into routine exercisers. BCS have better outcomes when participating in group exercise, in part due to feelings of being safe and supported ([Balneaves et al., 2014](#); [Courneya et al., 2016](#); [Husebø, Karlsen, Allan, Søreide, & Bru, 2015](#); [Luoma et al., 2014](#)). Survivors may be unable to enlist social support from their own family and friends and benefit from a team “family” of women with similar stories ([Robinson et al., 2016](#)). A team training focus is found in a small group of studies. A group interventional study involved a 22-person (dragon) boat synchronously paddled by a group of women. The 8-week intervention study found increased cohesion and attendance in the paddling program versus a group-based walking program ([Carter et al., 2012](#)). In another study of a team-triathlon training, [Robinson and colleagues \(2016\)](#) reported that survivors found the team format to be a motivator for exercise. The women spoke of comradery and accountability to the team carrying them through the training. Like this current study, the team helped them to open up and share their

cancer journey stories with increased confidence. None of the team studies were randomized. Randomized control team studies are needed comparing controls to team members to verify these findings.

BCS entered training with an intent to make exercise a priority. For the women in this study, the physical and emotional toll of cancer treatment had decreased their ability to exercise. The women were being encouraged to become more active by family, friends, and health care professionals. Unfortunately, exercise often is not well addressed by providers at the time of diagnosis and treatment, despite the known benefits ([Casla et al., 2014](#)). This study confirmed this finding in these women and the women endorsed that exercise should be included earlier and possibly as part of “standard care” so that all would participate.

The attendance rate for this training program was the same as found in another small African American community-based study ([Nock et al., 2013](#)). Despite the success of retaining women in the walking intervention, only 75% completed the walking event related to the social responsibilities of these women on the day the event occurred. This may be related to the multiple responsibilities of this group of women. African American women may still see exercise as a luxury which is not prioritized in their lives ([Im et al., 2012](#)).

African American women tend to exercise less and be more obese, gaining more weight with treatment than non-Hispanic White women ([Nock et al., 2013](#)). Among BCS, exercise is often not viewed as important. This lack of importance has been attributed to a lack of exercise knowledge and skills ([Oyekanmi & Paxton, 2014](#)). The women entering the current study noted they did not like to exercise and exercise had not been a priority to them after cancer treatment. Through starting the walking program, the women were beginning to fit exercise into their lives. The women felt supported by the team and appreciated having a safe place for exercise. With this exercise training program, the BCS integrated exercise into their lives.

Although not a focus of the program, BCS entering the program wanted to lose weight through increased exercise. Some women noted that by the end of the program they had lost weight. However, BMI did not change significantly with the training intervention. In contrast, a lifestyle intervention pilot study aimed at weight loss included a reduced calorie diet and 150-min per week of aerobic exercise did achieve weight loss ([Balneaves et al., 2014](#)). One third of the nine women in the 24-week intervention study achieved a goal of 7% weight loss. Dietary considerations are important in this population and future research should include more emphasis on nutrition ([Nock et al., 2013](#)).

The women noted positive physical and mental changes during the program motivating them as they established new exercise behaviors. The BCS experienced psychological benefits, such as, feeling supported by the team with similar stories and a lessening of depression and felt more physically fit. In a similar study, African American BCS were interviewed after participation in a 20-week resistance exercise and walking program ([Nock et al., 2015](#)). BCS participating in this program noted improved fitness, psychological benefits, and felt supported in the environment of other cancer survivors.

Entering the program, female BCS knew some of the benefits of exercise, but not the best ways to exercise. Women in the study reported they had not learned to exercise and been held back by cultural expectations that limited exercise for women and had been further restricted by missed opportunities to exercise during childhood ([Im et al., 2012](#)), which may have been in part due to ethnicity and socio-economic status ([Im et al., 2012](#)). They found the different types of exercise in this program educational and motivating.

Barriers noted by the women in the current study included time, fatigue, and early on being discouraged in the training in the beginning. These findings are similar to another study of African American BCS that was a web survey asking participants to identify which of 14 barriers to exercise affected them ([Oyekanmi & Paxton, 2014](#)). The BCS reported lack of discipline, time, energy, interest, and good health to be the most commonly

reported barriers to exercise ([Oyekanmi & Paxton, 2014](#)). The study also found that obese participants were more likely to report discouragement and lack of facilities or space as barriers to exercise.

The focus group related intentions to change their behavior driven in congruence with concepts of the Theory of Planned Behavior. Personal attitudes toward exercising became more positive, subjective norms changed impacting their exercise desires, and they believed they had more control over exercise after the intervention.

This study had several limitations including a small, self-selected sample. However, the fact that African American women enrolled in the program and maintained participation despite the record cold winter is notable. A large percent of the sample did not complete physical measurements (BMI and walk-test). However, significant improvement was still seen in functional endurance for the women who did complete testing. Recruitment was completed by medical professionals who indirectly supervised the program which limits findings as this approach likely added to the success of the program in this study. The program was labor intensive which could limit it being repeated. Yet, the number of professional staff and supporters likely added to the women successfully completing the program.

A 14-week medically supervised, team physical activity program encouraged African American BCS to exercise with the goal of completing a 5K. The training program promoted improved walking and well-being among BCS. Female BCS enjoyed the experience and were wishing for continued team exercise in their community. Practitioners may consider a team approach including nutrition and exercise education for improving exercise habits in cancer survivors.

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References

Ajzen, I. (1991). The theory of planned behavior. <i>Organizational Behavior and Human Decision Processes</i> , 50, 179-211.
Balneaves, L. G., Van Patten, C., Truant, T. O., Kelly, M., Neil, S. E., Campbell, K. L. (2014). Breast cancer survivors' perspectives on a weight loss and physical activity lifestyle intervention. <i>Supportive Care in Cancer</i> , 22, 2057-2065. doi: 10.1007/s00520-014-2185-4
Battaglini, C. L., Mills, R. C., Phillips, B. L., Lee, J. T., Story, C. E., Nascimento, M. G., Hackney, A. C. (2014). Twenty-five years of research on the effects of exercise training in breast cancer survivors: A systematic review of the literature. <i>World Journal of Clinical Oncology</i> , 5, 177-190. doi: 10.5306/wjco.v5.i2.177
Bohannon, R. W. (1995). Sit-to-stand test for measuring performance of lower extremity muscles. <i>Perceptual and Motor Skills</i> , 80, 163-166.
Bradshaw, P. T., Ibrahim, J. G., Khankari, N., Cleveland, R. J., Abrahamson, P. E., Stevens, J., . . . Gammon, M. D. (2014). Post-diagnosis physical activity and survival after breast cancer diagnosis: The Long Island Breast Cancer Study. <i>Breast Cancer Research and Treatment</i> , 145, 735-742. doi: 10.1007/s10549-014-2966-y

Carter, C. L., Onicescu, G., Cartmell, K. B., Sterba, K. R., Tomsic, J., Alberg, A. J. (2012). The comparative effectiveness of a team-based versus group-based physical activity intervention for cancer survivors. <i>Supportive Care in Cancer</i> , 20, 1699-1707.
Casla, S., Hojman, P., Márquez-Rodas, I., López-Tarruella, S., Jerez, Y., Barakat, R., Martín, M. (2014). Running away from side effects: Physical exercise as a complementary intervention for breast cancer patients. <i>Clinical and Translational Oncology</i> , 17, 180-196. doi: 10.1007/s12094-014-1184-8
Cho, M. H., Dodd, M. J., Cooper, B. A., Miaskowski, C. (2012). Comparisons of exercise dose and symptom severity between exercisers and nonexercisers in women during and after cancer treatment. <i>Journal of Pain and Symptom Management</i> , 43, 842-854.
Coughlin, S. S., Yoo, W., Whitehead, M. S., Smith, S. A. (2015). Advancing breast cancer survivorship among African-American women. <i>Breast Cancer Research and Treatment</i> , 153, 253-261. doi: 10.1007/s10549-015-3548-3
Courneya, K. S., Vardy, J. L., O'Callaghan, C. J., Friedenreich, C. M., Campbell, K. L., Prapavessis, H., . . . Booth, C. M. (2016). Effects of a structured exercise program on physical activity and fitness in colon cancer survivors: One year feasibility results from the CHALLENGE trial. <i>Cancer Epidemiology, Biomarkers & Prevention</i> , 25, 969-977.
Ellsworth, R. E., Valente, A. L., Shriver, C. D., Bittman, B., Ellsworth, D. L. (2012). Impact of lifestyle factors on prognosis among breast cancer survivors in the USA. <i>Expert Review of Pharmacoeconomics & Outcomes Research</i> , 12, 451-464. doi: 10.1586/erp.12.37
Fisher, M. I., Lee, J., Davies, C. C., Geyer, H., Colon, G., Pfalzer, L. (2015). Oncology section EDGE task force on breast cancer outcomes: A systematic review of outcome measures for functional mobility. <i>Rehabilitation Oncology</i> , 33(3), 19-31.
Husebø, A. M. L., Karlsen, B., Allan, H., Søreide, J. A., Bru, E. (2015). Factors perceived to influence exercise adherence in women with breast cancer participating in an exercise programme during adjuvant chemotherapy: A focus group study. <i>Journal of Clinical Nursing</i> , 24, 500-510. doi: 10.1111/jocn.12633
Im, E.-O., Ko, Y., Hwang, H., Yoo, K. H., Chee, W., Stuifbergen, A., . . . Chee, E. (2012). "Physical activity as a luxury": African American women's attitudes toward physical activity. <i>Western Journal of Nursing Research</i> , 34, 317-339.
Lee, C. E., Von Ah, D., Szuck, B., Lau, Y. K. (2016). Determinants of physical activity maintenance in breast cancer survivors after a community-based intervention. <i>Oncology Nursing Forum</i> , 43, 93-102. doi: 10.1188/16.onf.43-01ap
Loprinzi, P. D., Cardinal, B. J., Si, Q., Bennett, J. A., Winters-Stone, K. M. (2012). Theory-based predictors of follow-up exercise behavior after a supervised exercise intervention in older breast cancer survivors. <i>Supportive Care in Cancer</i> , 20, 2511-2521. doi: 10.1007/s00520-011-1360-0
Loprinzi, P. D., Lee, H. (2014). Rationale for promoting physical activity among cancer survivors: Literature review and epidemiologic examination. <i>Oncology Nursing Forum</i> , 41, 117-125.
Lucas, A. R., Levine, B. J., Avis, N. E. (2017). Posttreatment trajectories of physical activity in breast cancer survivors. <i>Cancer</i> , 123, 2773-2780. doi: 10.1002/cncr.30641
Luoma, M.-L., Hakames-Blomquist, L., Blomquist, C., Nikandeer, R., Gustavsson-Lilius, M., Saarto, T. (2014). Experiences of breast cancer survivors participating in a tailored exercise intervention—A qualitative study. <i>Anticancer Research</i> , 34, 1193-1199.
Miller, K. D., Siegel, R. L., Lin, C. C., Mariotto, A. B., Kramer, J. L., Rowland, J. H., . . . Jemal, A. (2016). Cancer treatment and survivorship statistics, 2016. <i>CA: A Cancer Journal for Clinicians</i> , 66, 271-289. doi: 10.3322/caac.21349
Nelson, S. H., Marinac, C. R., Patterson, R. E., Nechuta, S. J., Flatt, S. W., Caan, B. J., . . . Pierce, J. P. (2016). Impact of very low physical activity, BMI, and comorbidities on mortality among breast cancer survivors. <i>Breast Cancer Research and Treatment</i> , 155, 551-557. doi: 10.1007/s10549-016-3694-2

Nock, N. L., Owusu, C., Flocke, S., Krejci, S. A., Kullman, E. L., Austin, K., . . . Berger, N. A. (2015). A community-based exercise and support group program improves quality of life in African-American breast cancer survivors: A quantitative and qualitative analysis. <i>International Journal of Sports and Exercise Medicine</i> , 1(3), Article 020.
Nock, N. L., Owusu, C., Kullman, E. L., Austin, K., Roth, B., Cerne, S., . . . Berger, N. A. (2013). A community-based exercise and support group program in African-American Breast Cancer Survivors (ABCs). <i>Journal of Physical Therapy and Health Promotion</i> , 1, 15-24.
Oyekanmi, G., Paxton, R. J. (2014). Barriers to physical activity among African American breast cancer survivors. <i>Psycho-Oncology</i> , 23, 1314-1317. doi: 10.1002/pon.3527
Paxton, R. J., Nayak, P., Taylor, W. C., Chang, S., Courneya, K. S., Schover, L., . . . Jones, L. A. (2014). African-American breast cancer survivors' preferences for various types of physical activity interventions: A Sisters Network Inc. web-based survey. <i>Journal of Cancer Survivorship</i> , 8, 31-38. doi: 10.1007/s11764-013-0307-5
Peterson, J. A., Cheng, A.-L. (2010). Heart and soul physical activity program for African American women. <i>Western Journal of Nursing Research</i> , 33, 652-670. doi: 10.1177/0193945910383706
Robinson, K. M., Piacentine, L. B., Waltke, L. J., Ng, A. V., Tjoe, J. A. (2016). Survivors speak: A qualitative analysis of motivational factors influencing breast cancer survivors' participation in a sprint distance triathlon. <i>Journal of Clinical Nursing</i> , 25, 247-256.
Spector, D., Deal, A. M., Amos, K. D., Yang, H., Battaglini, C. L. (2014). A pilot study of a home-based motivational exercise program for African American breast cancer survivors: Clinical and quality-of-life outcomes. <i>Integrative Cancer Therapies</i> , 13, 121-132. doi: 10.1177/1534735413503546
Stolley, M. R., Sharp, L. K., Wells, A. M., Simon, N., Schiffer, L. (2006). Health behaviors and breast cancer: Experiences of urban African American women. <i>Health Education & Behavior</i> , 33, 604-624. doi: 10.1177/1090198106290845
Wurz, A., St-Aubin, A., Brunet, J. (2015). Breast cancer survivors' barriers and motives for participating in a group-based physical activity program offered in the community. <i>Supportive Care in Cancer</i> , 23, 2407-2416. doi: 10.1007/s00520-014-2596-2